SAMPLE
INTELLIGENT COMPACTION HOT MIX ASPHALT TEST STRIP REPORT

Office of Construction Engineering
Caltrans
December 2015

HMA Test strip report must include:

1. Completed *Intelligent Compaction Hot Mix Asphalt Construction Test Strip Submittals Summary* form
2. Nuclear gage density per location and corresponding GPS measured coordinates per location
3. All passes compaction curves from Veta
4. All passes correlation analysis plot from Veta
5. Field compaction curve density versus number of passes
6. All passes histogram for each roller
7. Color layout plots (11”x17”) of:
   7.1. Roller passes for each roller
   7.2. HMA temperature for first coverage of breakdown compaction.
   7.3. HMA temperature for final coverage of intermediate compaction.
   7.4. Intelligent compaction measurement value for final coverage of intermediate compaction
8. Hot mix asphalt mat temperature readings with corresponding GPS coordinates

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INTELLIGENT COMPACTION HOT MIX ASPHALT TEST STRIP SUBMITTAL SUMMARY

CEM-IC10 (NEW 11/17/2015)

PROJECT INFORMATION/NAME	CONTRACT NUMBER	CO/RTE/PM
	PROJECT IDENTIFIER NUMBER	
	CONTRACTOR NAME	

Instruction: This form is to be completed and submitted by the contractor with the HMA test strip report to ensure a complete submittal. The Engineer should use this form to verify that the submittals of the intelligent compact test strip report and test strip information are complete.
For questions about this form send an email to: IC@dot.ca.gov

HOT MIX ASPHALT (HMA) TEST STRIP PLACEMENT INFORMATION

HMA Type	HMA thickness	HMA Test Strip Placement Date
HMA Placement Location	Beginning Station	Ending Station
IC Quality Control Technician (print name)	IC Quality Control Technician (email address)	IC Quality Control Technician (phone number)

Intelligent Compaction Target Values Determined From Test Strip

_____Target number of roller passes for breakdown compaction	Roller type: ☐ Steel vibratory ☐ Steel static ☐ Pneumatic
_____Target roller 1st pass minimum temperature breakdown compaction	
_____Target number of roller passes for intermediate compaction	Roller type: ☐ Steel vibratory ☐ Steel static ☐ Pneumatic
_____Target minimum temperature °F for completing intermediate compaction	
_____Target intelligent compaction measurement value	
_____Roller pass number that is the basis for target intelligent compaction measurement value	

COMMENTS:

Test Strip Report Required Submittals

Test Strip Report Completed by Email Address	Phone Number	
Test Strip Report Completed by (print name)	Signature	Date

Test Strip Report General Information

Contractor Submittal *Check all that were submitted*	Submittal Review *This Column For Engineer's Use*
☐ Nuclear gage density per location	Submittal is adequate? ☐ Yes ☐ No ☐ See Comment
☐ GPS measured coordinates per density location	Submittal is adequate? ☐ Yes ☐ No ☐ See Comment
☐ HMA mat temperature measured per three locations	Submittal is adequate? ☐ Yes ☐ No ☐ See Comment
☐ GPS measured coordinates per HMA mat temperature location	Submittal is adequate? ☐ Yes ☐ No ☐ See Comment
☐ Field compaction curve versus number of passes	Submittal is adequate? ☐ Yes ☐ No ☐ See Comment

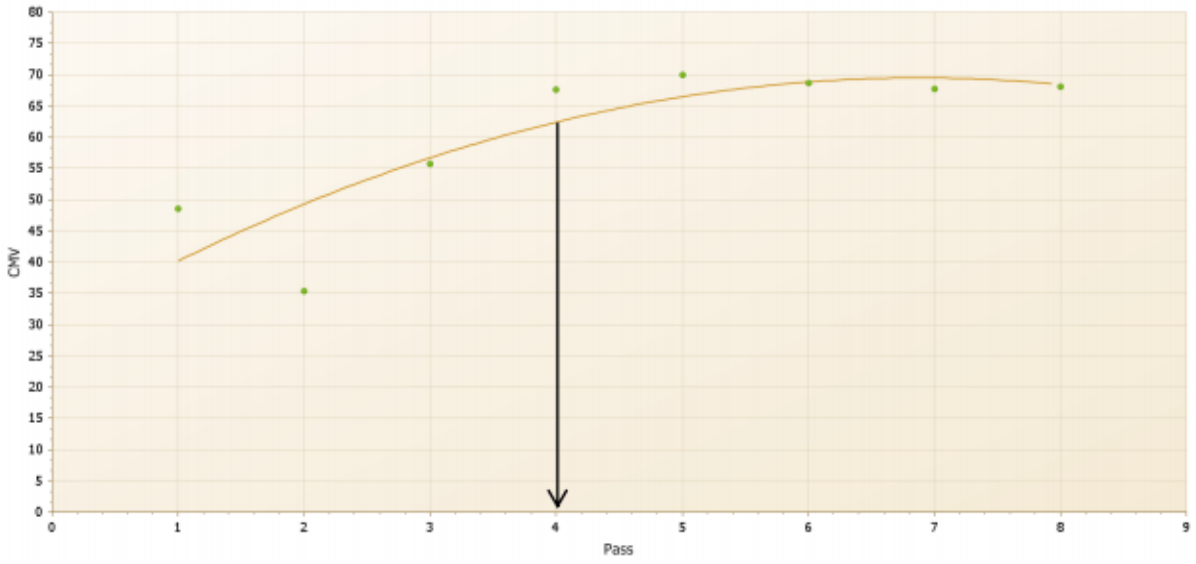
COMMENTS:

Intelligent Compaction Hot Mix Asphalt Construction Test Strip Submittals Summary form

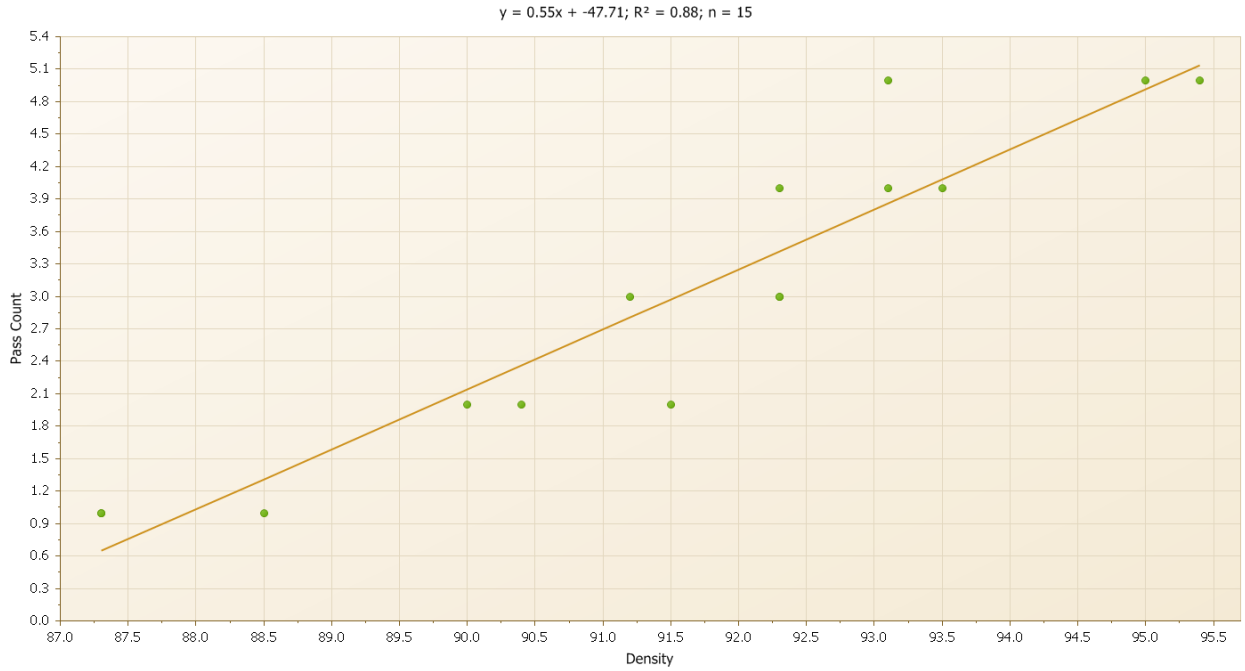
Tests

Steel	ID	Date	Easting (ft)	Northing (ft)	Test Type	Value
Vibe	1	8/11/2015	6867980.418	1893928.092	Density - Nuclear Gauge	110.3
	2	8/12/2015	6867999.307	1893960.835	Density - Nuclear Gauge	112.4
	3	8/13/2015	6868027.574	1893990.064	Density - Nuclear Gauge	112.9
Steel	ID	Date	Easting (ft)	Northing (ft)	Test Type	Value
Vibe	1	8/11/2015	6867980.418	1893928.092	Density - Nuclear Gauge	115.2
	2	8/11/2015	6867999.307	1893960.835	Density - Nuclear Gauge	115.7
	3	8/11/2015	6868027.574	1893990.064	Density - Nuclear Gauge	115.1
Steel	ID	Date	Easting (ft)	Northing (ft)	Test Type	Value
Static	1	8/11/2015	6867980.418	1893928.092	Density - Nuclear Gauge	119.2
	2	8/11/2015	6867999.307	1893960.835	Density - Nuclear Gauge	117.6
	3	8/11/2015	6868027.574	1893990.064	Density - Nuclear Gauge	119.4
Pnuematic	ID	Date	Easting (ft)	Northing (ft)	Test Type	Value
	1	8/11/2015	6867980.418	1893928.092	Density - Nuclear Gauge	121.3
	2	8/11/2015	6867999.307	1893960.835	Density - Nuclear Gauge	121.1
	3	8/11/2015	6868027.574	1893990.064	Density - Nuclear Gauge	122.2
Pnuematic	ID	Date	Easting (ft)	Northing (ft)	Test Type	Value
	1	8/11/2015	6867980.418	1893928.092	Density - Nuclear Gauge	123
	2	8/11/2015	6867999.307	1893960.835	Density - Nuclear Gauge	124
	3	8/11/2015	6868027.574	1893990.064	Density - Nuclear Gauge	124.7
Pnuematic	ID	Date	Easting (ft)	Northing (ft)	Test Type	Value
	1	8/11/2015	6867980.418	1893928.092	Density - Nuclear Gauge	127
	2	8/11/2015	6867999.307	1893960.835	Density - Nuclear Gauge	128.1
	3	8/11/2015	6868027.574	1893990.064	Density - Nuclear Gauge	128.4
Pnuematic	ID	Date	Easting (ft)	Northing (ft)	Test Type	Value
	1	8/11/2015	6867980.418	1893928.092	Density - Nuclear Gauge	126.2
	2	8/11/2015	6867999.307	1893960.835	Density - Nuclear Gauge	126.5
	3	8/11/2015	6868027.574	1893990.064	Density - Nuclear Gauge	126.9
Steel	ID	Date	Easting (ft)	Northing (ft)	Test Type	Value
Vibe	1	8/11/2015	6867980.418	1893928.092	Density - Nuclear Gauge	127.5
	2	8/11/2015	6867999.307	1893960.835	Density - Nuclear Gauge	128.5
	3	8/11/2015	6868027.574	1893990.064	Density - Nuclear Gauge	129.1
	4	8/11/2015	6868077.65	1894048.11	Density - Nuclear Gauge	128
	5	8/11/2015	6868113.053	1894093.71	Density - Nuclear Gauge	130.1
	6	8/11/2015	6868272.015	1894287.386	Density - Nuclear Gauge	132.3
	7	8/11/2015	6868254.613	1894277.019	Density - Nuclear Gauge	124.7
	8	8/11/2015	6868230.111	1894247.078	Density - Nuclear Gauge	127.7
	9	8/11/2015	6868234.175	1894240.058	Density - Nuclear Gauge	127.1
	10	8/11/2015	6868217.908	1894231.752	Density - Nuclear Gauge	128

Nuclear gage density readings and the corresponding GPS coordinates



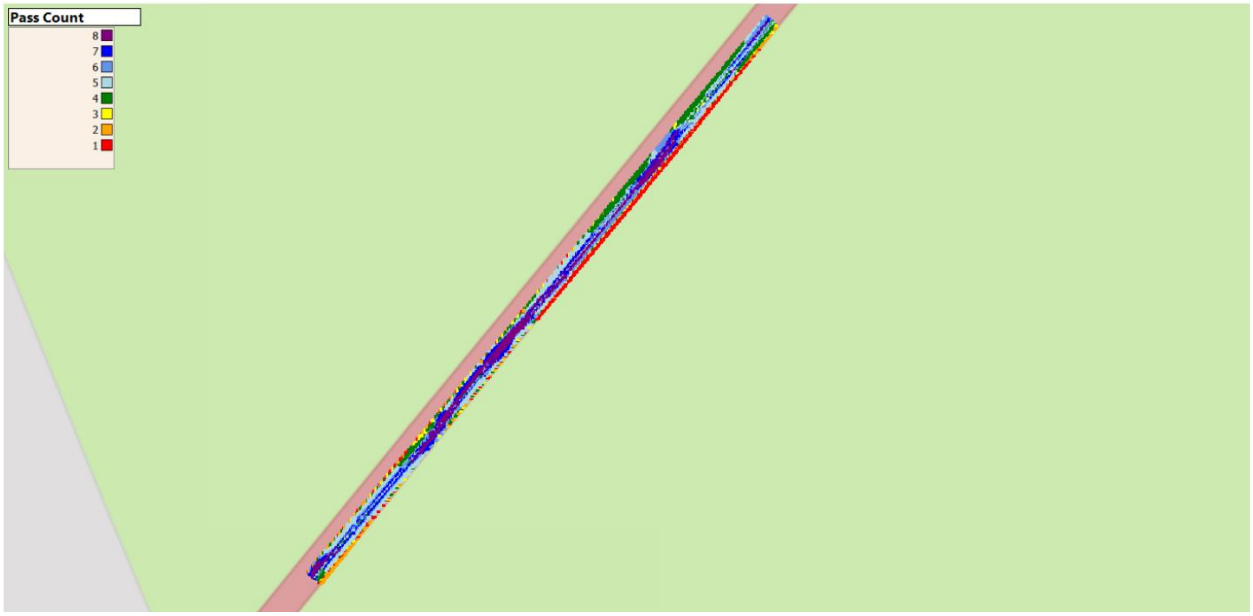
All passes compaction curves from Veta



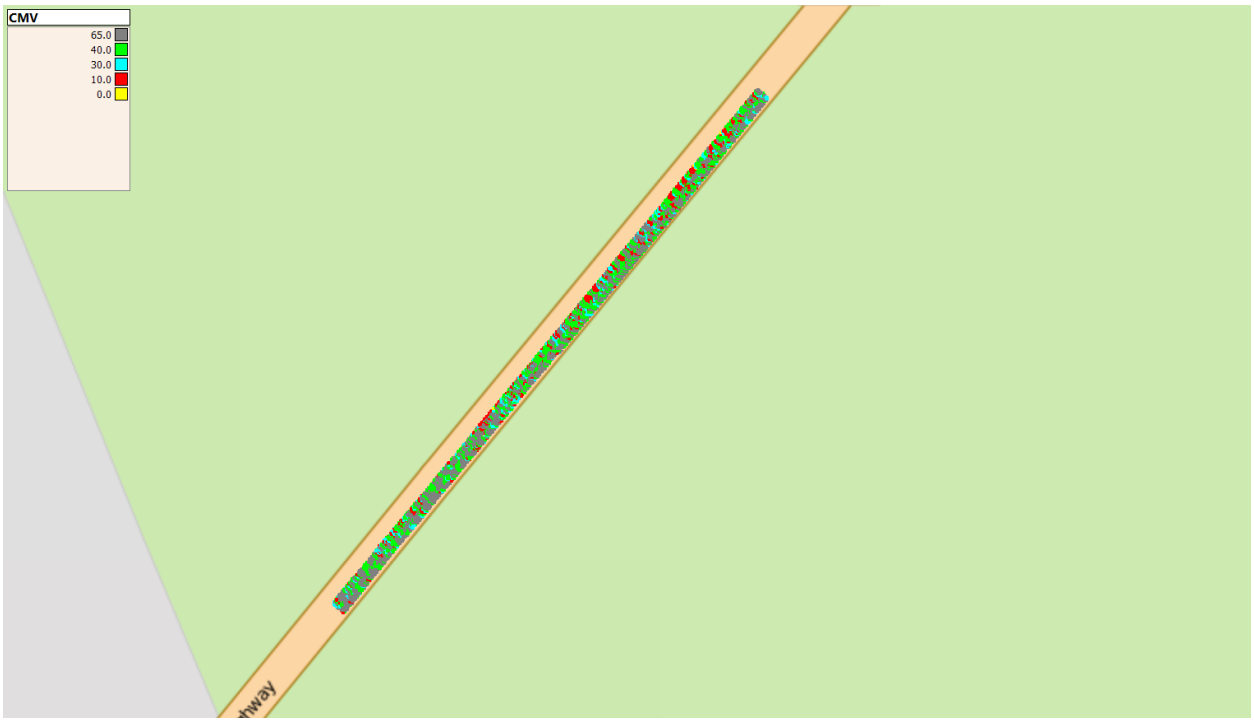
All passes correlation analysis plot from Veta

11”x17” HMA temperature for first coverage of breakdown compaction

11”x17” HMA temperature for final coverage of intermediate compaction



11”x17” Roller passes for each roller



11”x17” Intelligent compaction measurement value for final coverage of intermediate compaction

Break Down Compaction Roller Temperatures

ID	Date	Easting (ft)	Northing (ft)	Test Type	Value
1	09/12/15	6707143.447	2422187.275	Layer Moduli	237.1
2	09/12/15	6706573.992	2422092.686	Layer Moduli	235.5
3	09/12/15	6706561.677	2422098.211	Layer Moduli	249.8

Intermediate Compaction Roller Temperatures

ID	Date	Easting (ft)	Northing (ft)	Test Type	Value
4	09/12/15	6707143.447	2422187.275	Layer Moduli	225.9
5	09/12/15	6706573.992	2422092.686	Layer Moduli	212.2
6	09/12/15	6706561.677	2422098.211	Layer Moduli	221

Finish Compaction Roller Temperatures

ID	Date	Easting (ft)	Northing (ft)	Test Type	Value
7	09/12/15	6707143.447	2422187.275	Layer Moduli	167.5
8	09/12/15	6706573.992	2422092.686	Layer Moduli	158.5
9	09/12/15	6706561.677	2422098.211	Layer Moduli	164.4

Hot mix asphalt mat temperature readings with corresponding GPS coordinates

Density Requirement Compaction

For each day of production, prepare a HMA compaction quality control report that includes:

1. Summary of HMA compaction quality control results on *Intelligent Compaction Quality Control Report Summary for Intelligent Compaction Quality Control Report Summary for Hot Mix Asphalt with Density Requirement* form.
2. Veta analysis report results for:
   2.1 Percent compliance with target roller passes
   2.2 Percent compliance with target HMA temperature for first coverage of breakdown compaction
   2.3 Percent compliance with target HMA temperature for final coverage of intermediate compaction
   2.4 Percent compliance with target intelligent compaction measurement value

3. Final coverage histogram of number of passes for each roller and histogram of intelligent compaction measurement value of steel drum roller with vibratory on.
4. Final coverage histogram of number of passes for each roller and histogram of intelligent compaction measurement value of steel drum roller with vibratory on for a fixed interval.
5. All passes histogram for each roller
6. Color layout plots of:
   6.1. Roller passes for each roller
   6.2. HMA temperature for first coverage of breakdown compaction.
   6.3. HMA temperature for final coverage of intermediate compaction.
   6.4. Intelligent compaction measurement value for final coverage of intermediate compaction when required.
7. Quality control density measurements and corresponding GPS coordinate.
8. Hot mix asphalt mat temperature readings with corresponding GPS coordinates.

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Plots must include quality control density testing locations and results.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

INTELLIGENT COMPACTION QUALITY CONTROL REPORT SUMMARY FOR HOT MIX ASPHALT WITH DENITY REQUIREMENT

CEM-IC16 (NEW 08/08/2015)

PROJECT INFORMATION/NAME	CONTRACT NUMBER	CO/RTE/PM
	PROJECT IDENTIFIER NUMBER	
	CONTRACTOR NAME	

Instruction: This form to be used by the contractor to summarize the daily hot mix asphalt intelligent compaction quality control report information. For questions about this form send an email to: IC@dot.ca.gov

HOT MIX ASPHALT (HMA) PLACEMENT INFORMATION

HMA Placement Location		HMA Placement Date
Beginning Station	Ending Station	
IC Quality Control Technician (ICQCT)		ICQCT Phone Number

DAILY COMPACTION QUALITY CONTROL REPORT SUMMARY

Note: Intelligent compaction target values are determined from hot mix asphalt test stripe.

Breakdown Compaction Vibratory Steel Drum Roller Number of Passes

_____Target number of roller passes | _____Percent work area covered by minimum number of roller passes

Does the number of passes for IC vibratory steel drum roller compaction shown on final coverage histogram of number of passes show that at least 90 percent coverage of the HMA placement area met or exceed the minimum number of roller passes based on target value established at the test stripe?

☐ Yes ☐ No

If no, corrective action taken:

Breakdown Compaction Intelligent Compaction Measurement Value

_____Target intelligent compaction measurement value | _____Daily average intelligent compaction measurement value

Does the daily average intelligent compaction measurement value for final coverage of IC vibratory steel drum roller meet or exceed the target intelligent compaction measurement value established at the test stripe?

☐ Yes ☐ No

If the answer is no, is the daily average intelligent compaction value at least 81 percent of the target measurement value?

☐ Yes ☐ No

If the answer is no, reestablish the intelligent compaction measurement value.

Intermediate Compaction Roller Number of Passes

_____Target number of roller passes | _____Percent work area covered by minimum number of roller passes

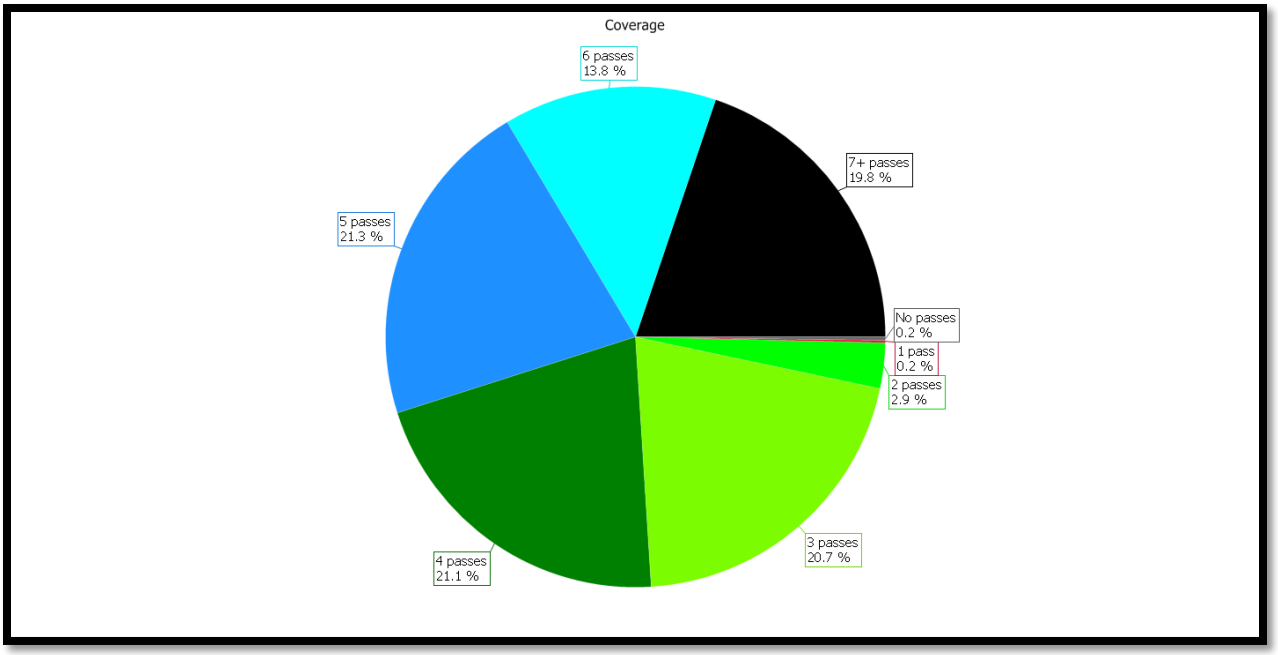
Does the number of passes for intermediate compaction roller shown on final coverage histogram of number of passes show that at least 90 percent coverage of the HMA placement area met or exceed the minimum number of roller passes based on target established at the test stripe?

☐ Yes ☐ No

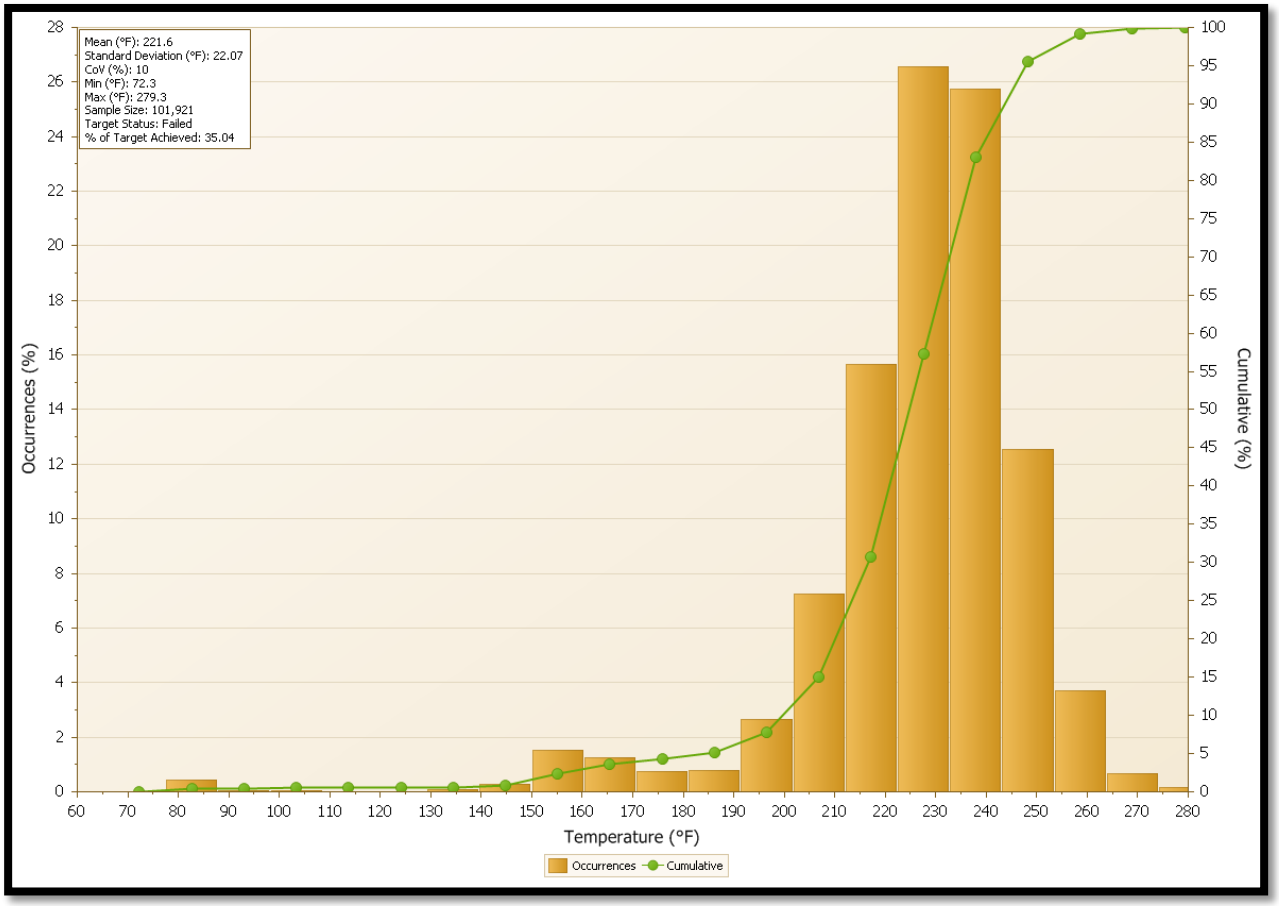
If no, corrective action taken:

Notes: 1) Results from intelligent compaction are for contractor quality control purposes and not to be used as Caltrans acceptance of HMA.
2) When the daily average intelligent compaction measurement meets or exceeds the target value and density is verified by contractor nuclear gage quality control test results, then corrective action for number of passes is not required.

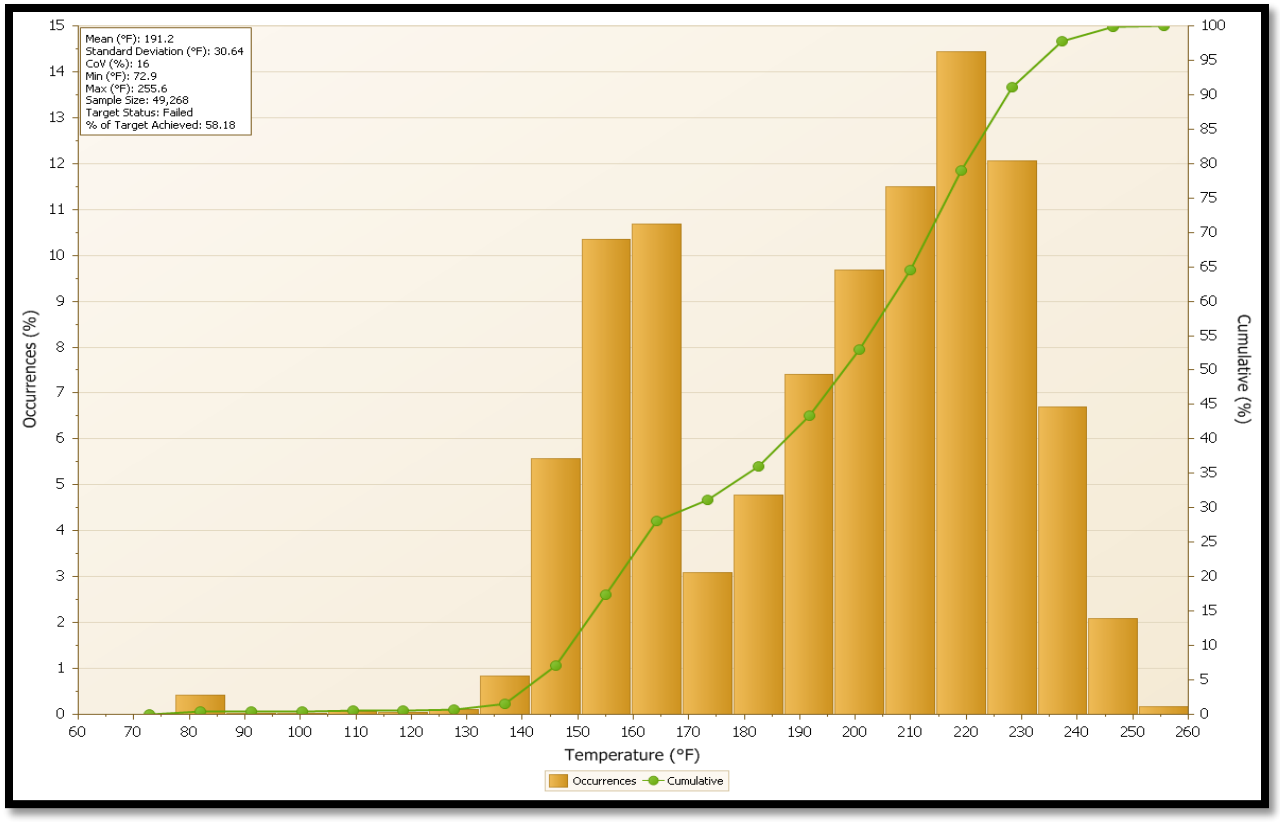
Updated 2015-08-08



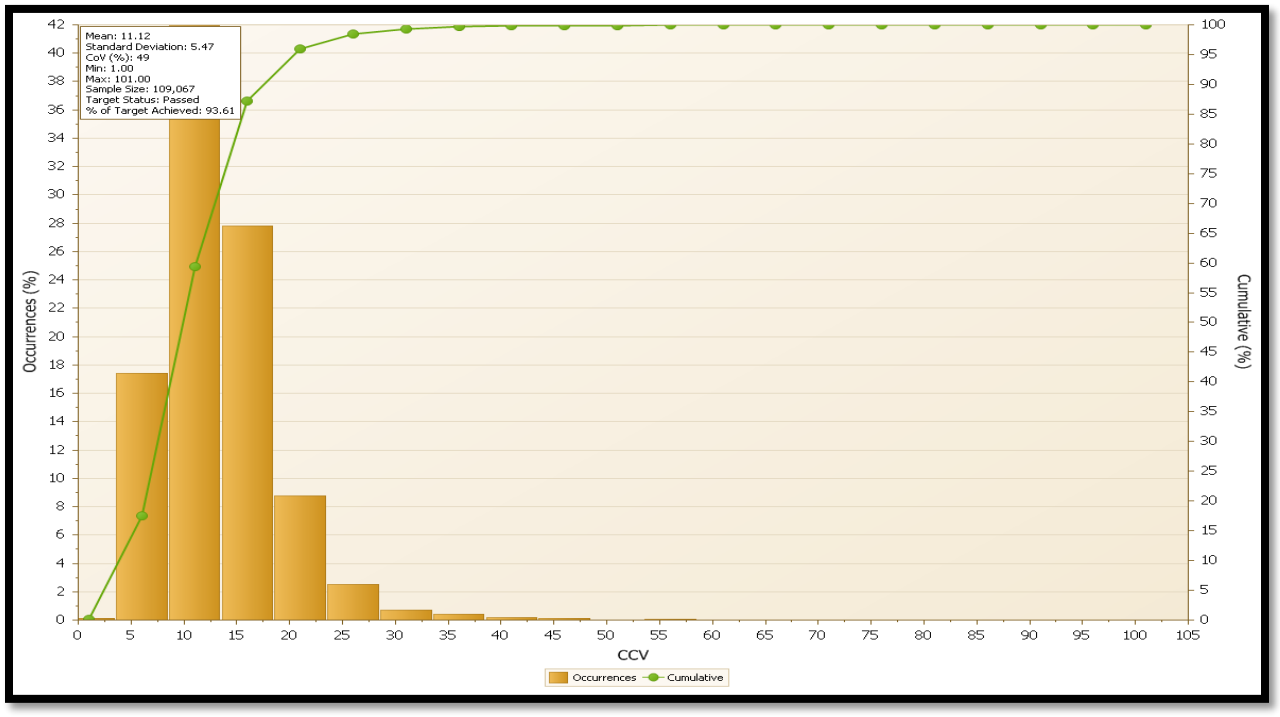
Percent compliance with target roller passes



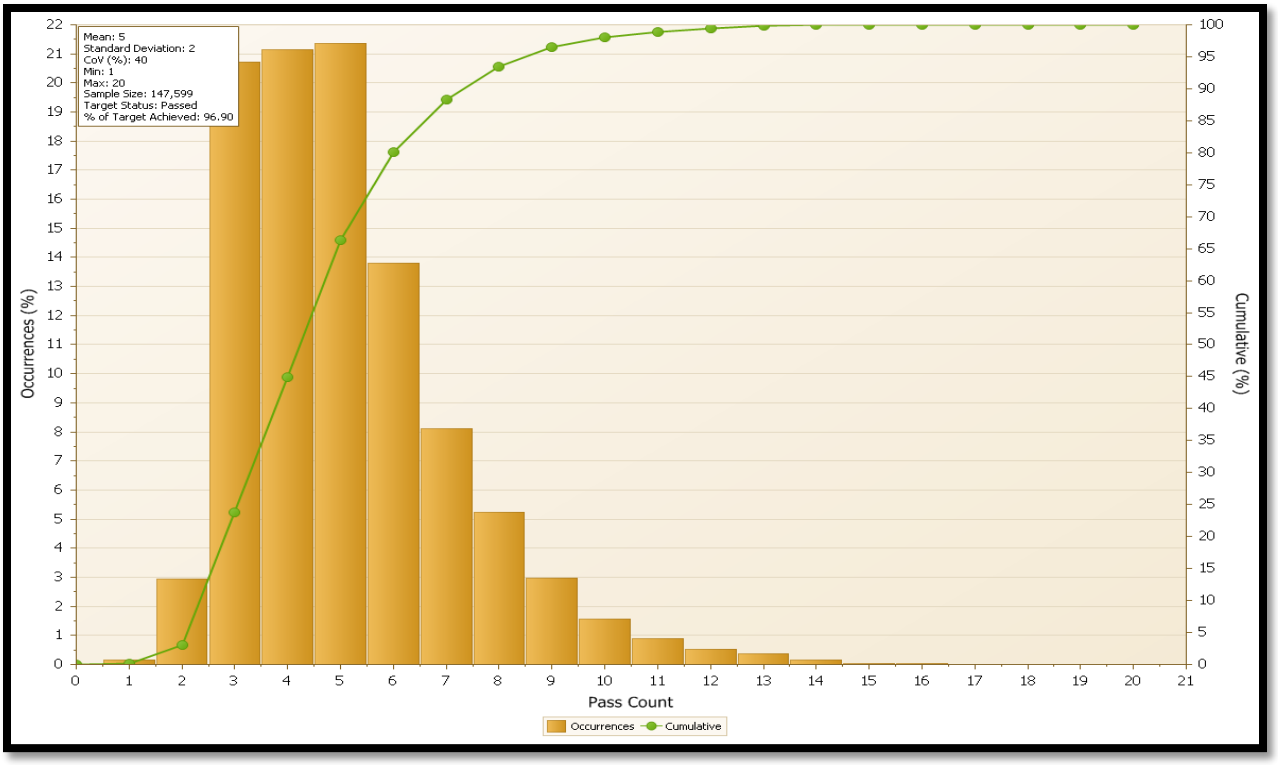
Percent compliance with target HMA temperature for first coverage of breakdown compaction



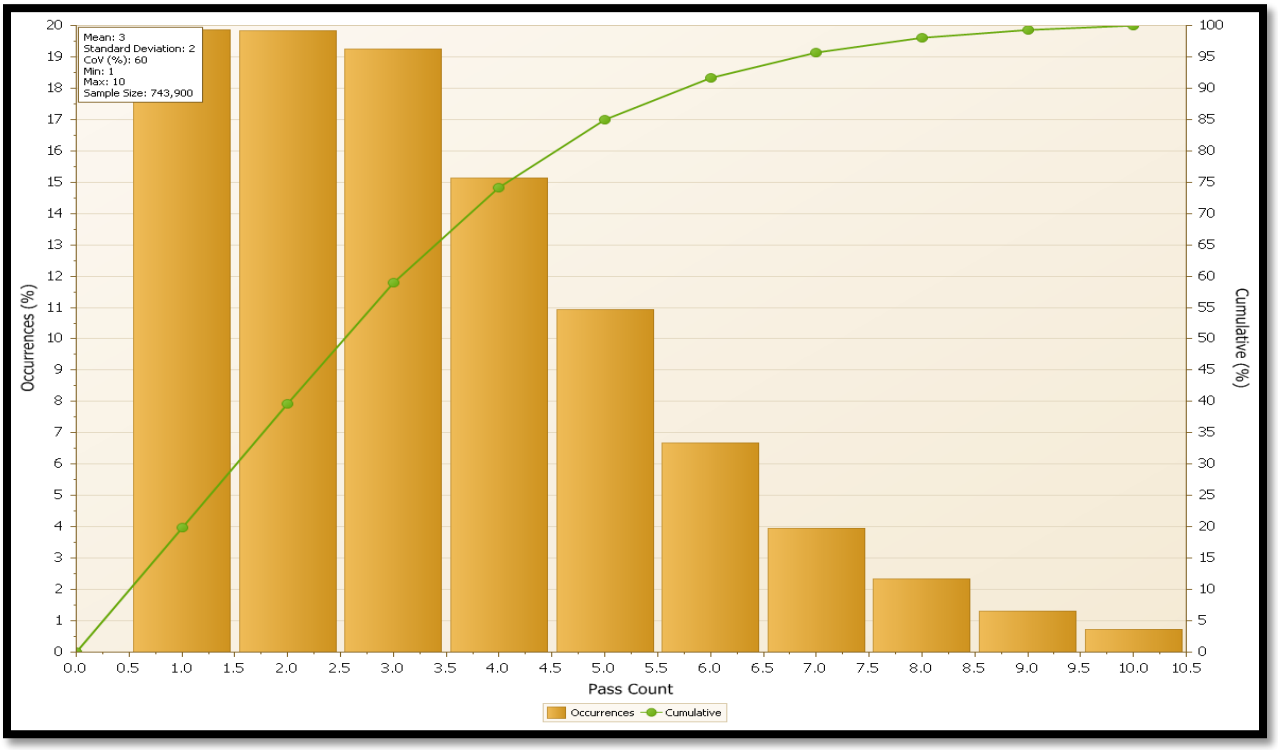
Percent compliance with target HMA temperature for final coverage of intermediate compaction



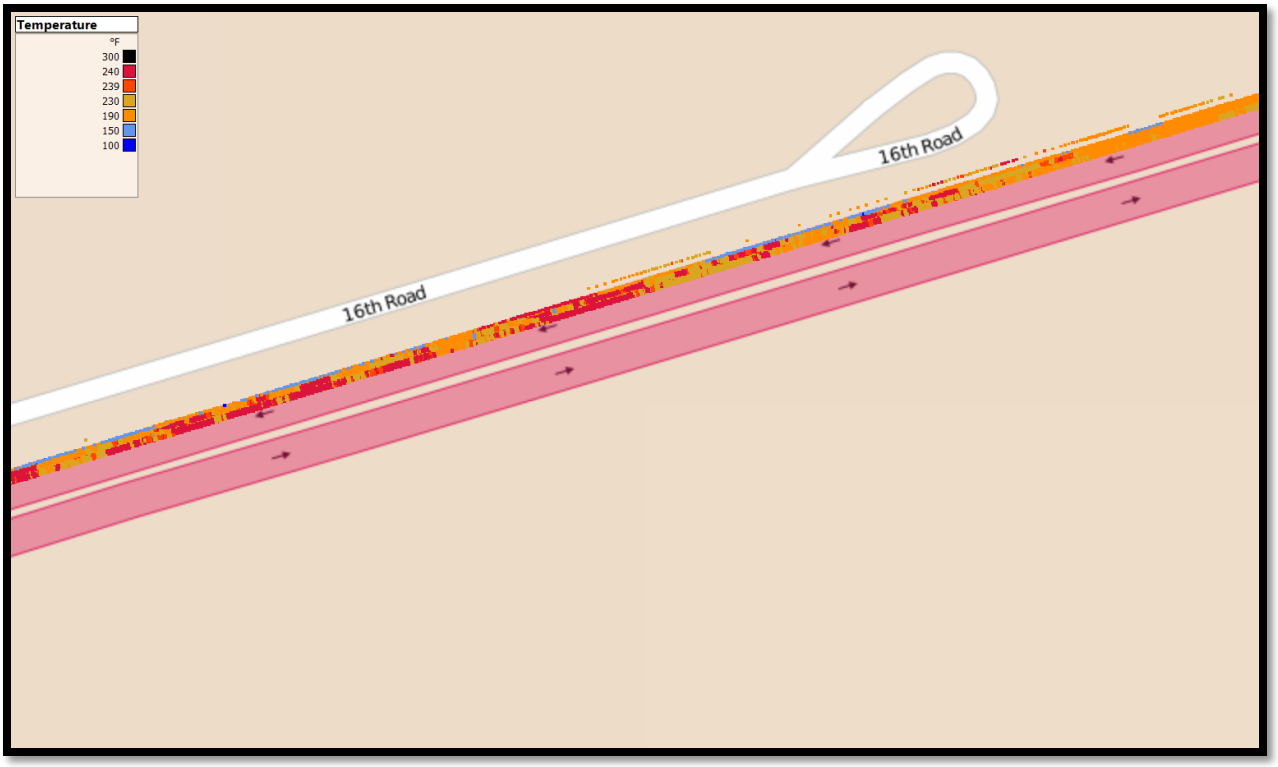
Percent compliance with target intelligent compaction measurement value



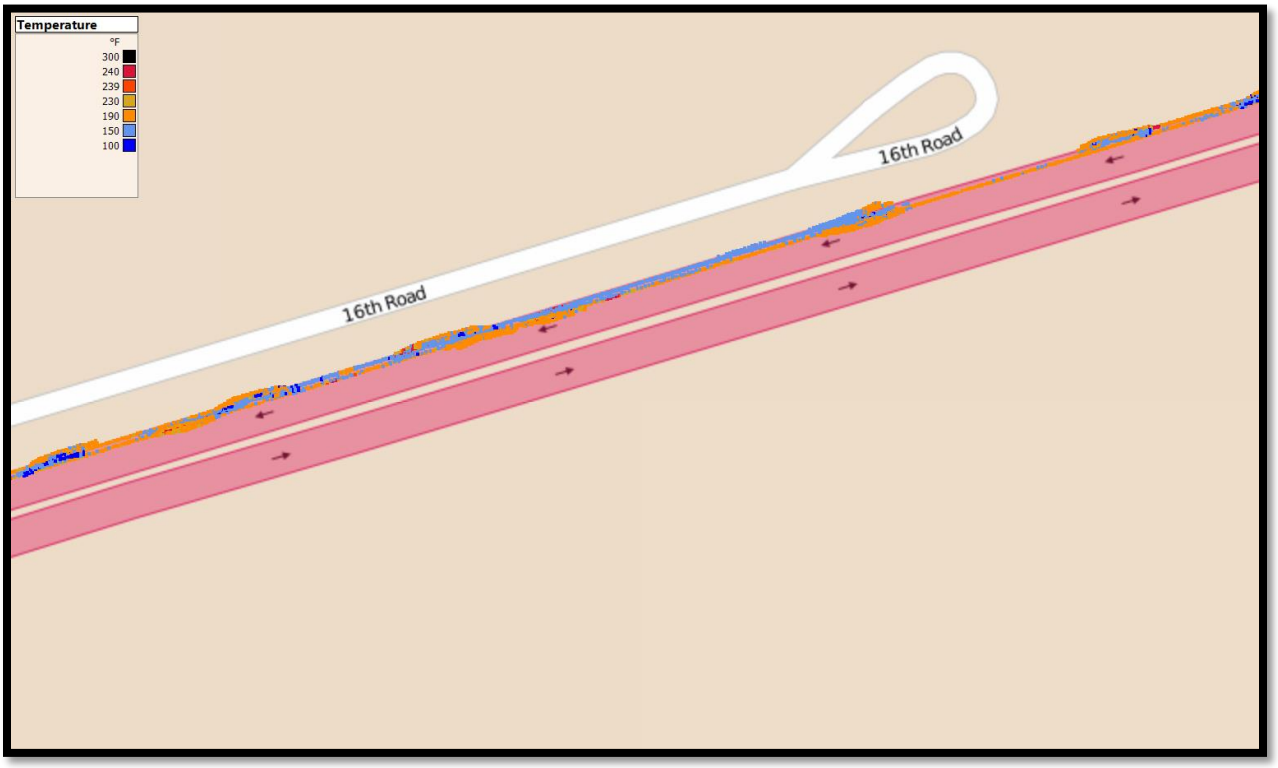
Final coverage histogram of number of passes for each roller



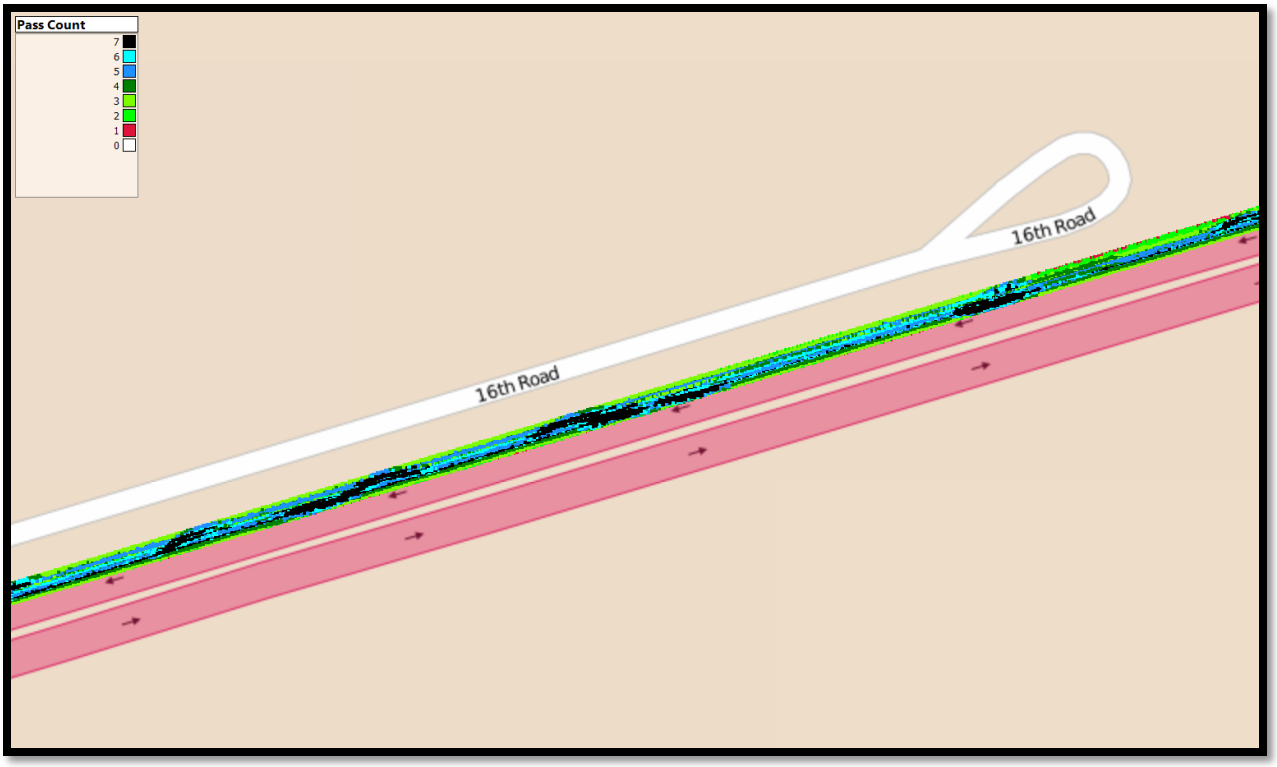
All passes histogram for each roller



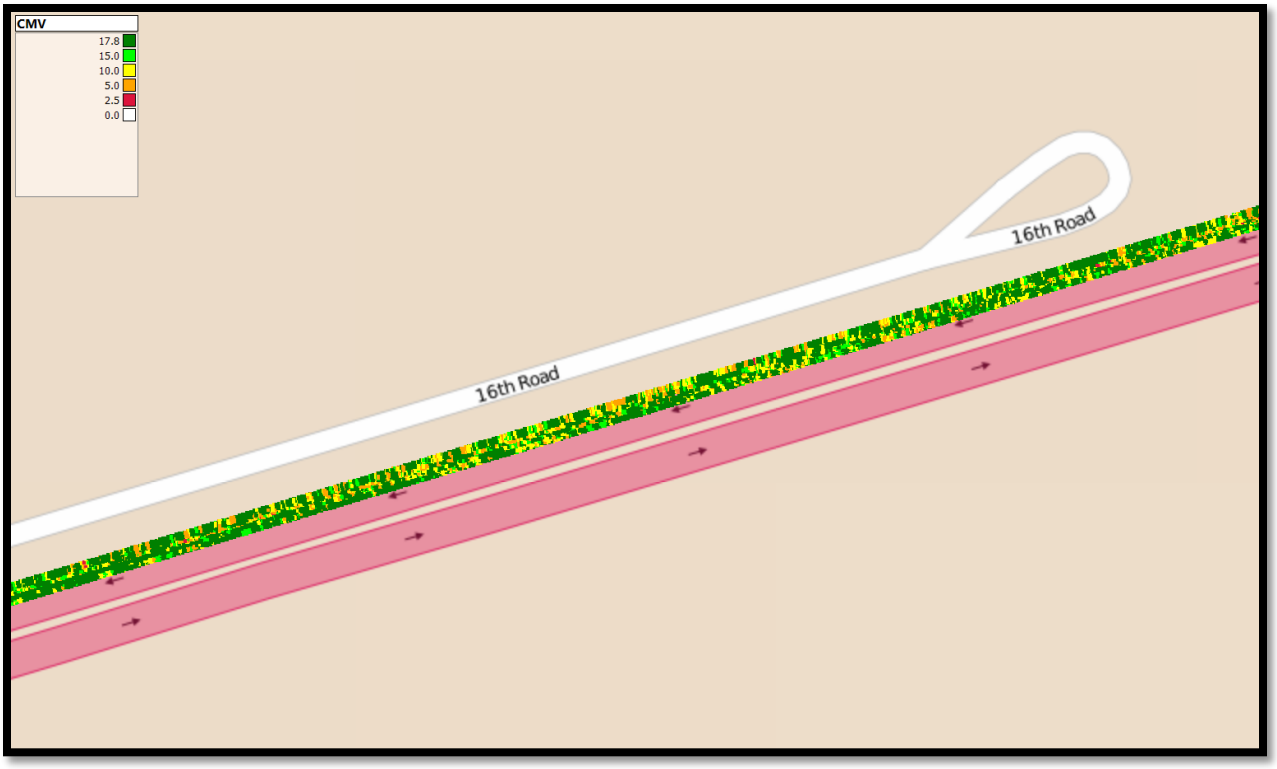
HMA temperature for first coverage of breakdown compaction.



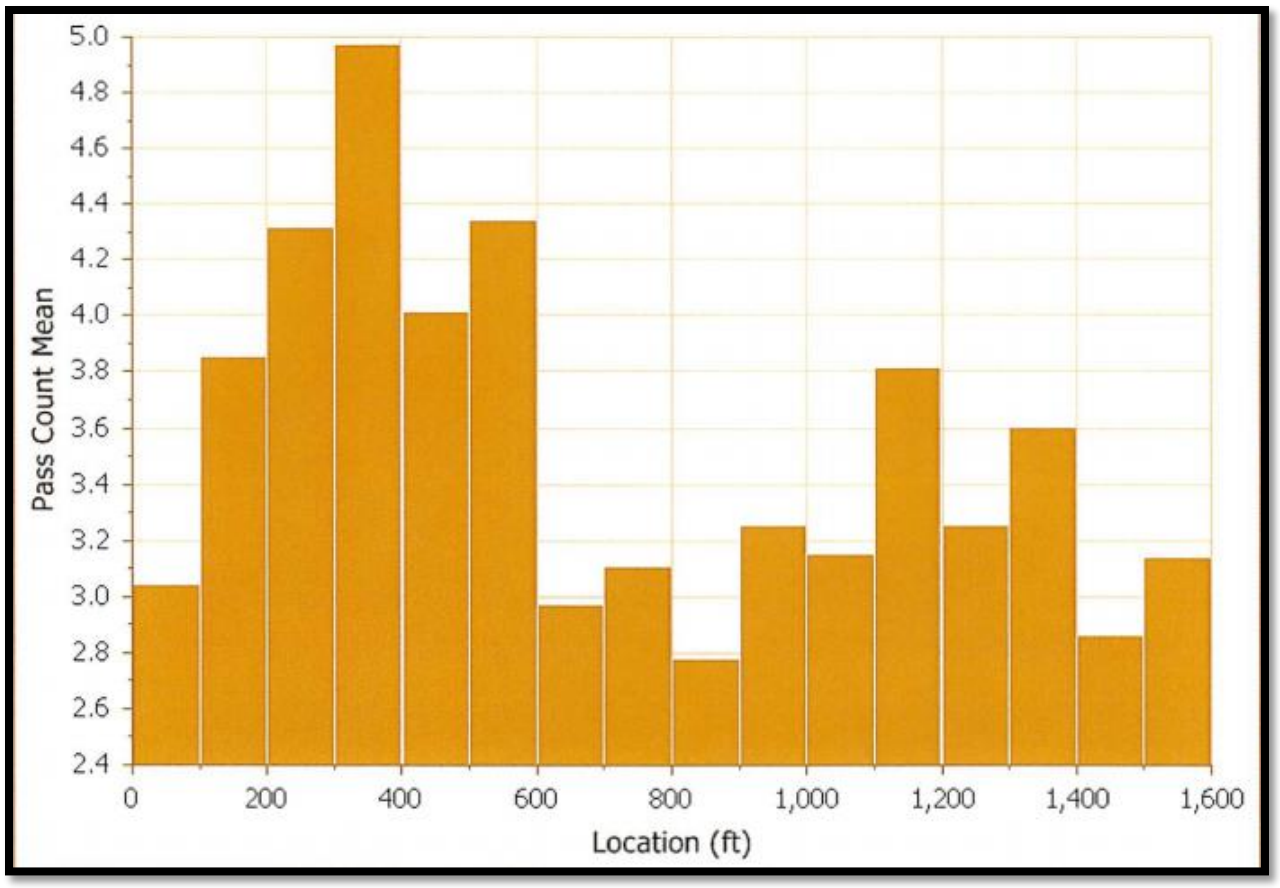
HMA temperature for final coverage of intermediate compaction.



Roller passes for each roller



Intelligent compaction measurement value of steel drum roller



Final coverage histogram of number of passes for each roller for a fixed interval.

Test Data Summary

ID	Date	Easting (ft)	Northing (ft)	Test Type	Value
1	09/12/15	6707864.854	2422263.488	Density - Nuclear Gauge	141.9
4	09/12/15	6707829.023	2422273.927	Density - Nuclear Gauge	138.1
5	09/12/15	6707395.953	2422213.652	Density - Nuclear Gauge	139
6	09/12/15	6707354.604	2422202.304	Density - Nuclear Gauge	137.6
2	09/12/15	6706957.282	2422145.005	Density - Nuclear Gauge	141
7	09/12/15	6706728.461	2422116.992	Density - Nuclear Gauge	141.8
8	09/12/15	6706705.126	2422111.303	Density - Nuclear Gauge	141.8
9	09/12/15	6706614.889	2422085.952	Density - Nuclear Gauge	140
3	09/12/15	6706559.636	2422090.126	Density - Nuclear Gauge	138.7
10	09/12/15	6706551.178	2422090.141	Density - Nuclear Gauge	143.7

Quality control density measurements and corresponding GPS coordinate.

Break Down Compaction Roller Temperatures

ID	Date	Easting (ft)	Northing (ft)	Test Type	Value
1	09/12/15	6707143.447	2422187.275	Layer Moduli	237.1
2	09/12/15	6706573.992	2422092.686	Layer Moduli	235.5
3	09/12/15	6706561.677	2422098.211	Layer Moduli	249.8

Intermediate Compaction Roller Temperatures

ID	Date	Easting (ft)	Northing (ft)	Test Type	Value
4	09/12/15	6707143.447	2422187.275	Layer Moduli	225.9
5	09/12/15	6706573.992	2422092.686	Layer Moduli	212.2
6	09/12/15	6706561.677	2422098.211	Layer Moduli	221

Finish Compaction Roller Temperatures

ID	Date	Easting (ft)	Northing (ft)	Test Type	Value
7	09/12/15	6707143.447	2422187.275	Layer Moduli	167.5
8	09/12/15	6706573.992	2422092.686	Layer Moduli	158.5
9	09/12/15	6706561.677	2422098.211	Layer Moduli	164.4

Hot mix asphalt mat temperature readings with corresponding GPS coordinates